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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/677,869	10/02/2003	Brian K. Fuller	DP-307055	9840

22851 7590 06/11/2007
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EXAMINER	
BAREFORD, KATHERINE A	
ART UNIT	PAPER NUMBER
1762	
MAIL DATE	DELIVERY MODE
06/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	**Application No.** 10/677,869	**Applicant(s)** FULLER ET AL.
	Examiner Katherine A. Bareford	**Art Unit** 1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 February 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-8,10-12 and 14-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Claims 5, 9, 13 and 17 are canceled

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The amendment of February 1, 2007 has been received and entered. With the entry of the amendment, claims 5, 9, 13 and 17 are canceled, and claims 1-~~5~~4, 6-8, 10-12 and 14-16 are pending for examination.

Claims

2. The Examiner understands "kinetically sprayed" surface or coatings as used in the claims to be a coating or surface sprayed by a process as described in paragraph [0016] of the specification and as further described in paragraphs [0003] - [0006] of the specification.

Terminal Disclaimer

3. The terminal disclaimer filed on February 1, 2007 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Patent No. 6,743,468 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent

and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. The rejection of claims 1-8 and 10-16 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 4, 9, 14, 15, and 17 of U.S. Patent No. 6,743,468 (Fuller et al) in view of the admitted state of the prior art is withdrawn due to the terminal disclaimer filed February 1, 2007 (as discussed in the ***Terminal Disclaimer*** section above).

6. Claims 1, 3, 4, 6-8, 10, 12 and 14-16 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 5, 6, 8, 10, 11, 13, 15, 16 and 19 of copending Application No. 10/263,172 (Smith et al) in view of the admitted state of the prior art.

Although the conflicting claims are not identical, they are not patentably distinct from each other because Smith provides in the claims that a kinetically sprayed surface can be applied to a substrate followed by a thermally sprayed overcoating (see claims 8 and 10, for example) and that the thermal spraying can be by high velocity oxy-fuel (claim 5). Although the claims of Smith do not specifically teach that the kinetically sprayed coating has defects or the specific thermal spray process used, it is the Examiner's position that these would have been obvious to one of ordinary skill in the art, as the admitted state of the prior art (paragraph [0007] of the specification) teaches that it is well known that kinetic spraying commonly results in defects on the applied surface. The thermally sprayed coating would inherently fill defects in the first layer by its application of molten material. As to present claims 3 and 12, claims 1 and 10 of Smith provide that different materials can be used for the different layers. As to present claims 4 and 10, claims 1 and 8 of Smith further provides that a kinetic spray layer can desirably be provided over a thermal spray layer as well. As to present claims 5 and 13, Smith teaches that the kinetic layer can be 5 mm thick and thus "at least 5 mm", see claims 13, 19 . As to present claims 6 and 14, the admitted state of the prior art teaches that the defects in the kinetic sprayed coating are commonly conical (paragraph [0007]). As to present claims 7 and 15, claims 6 and 8 of Smith provides that metal or alloy particles can be used as the solderable material, and that it an be applied by thermal spraying. As to present claims 8 and 16, claims 6 and 8 of Smith provides that alloy particles can be used, and it is the Examiner's position that it is well known in the art of thermal spraying to spray nickel and copper alloys.

This is a provisional obviousness-type double patenting rejection.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-4, 6, 7, 10-12, 14 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Fuller et al (US 6743468)

The applied reference has a common inventor (Brian K. Fuller) with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Claim 1: Fuller teaches a method of repairing a defect in a kinetically sprayed surface. *Column 7, lines 35-65.* A kinetically sprayed surface having a defect in the surface is provided. *Column 7, lines 55-60.* The kinetically sprayed surface is formed from particles maintained at a temperature below their melting temperature during kinetic spraying. *Column 6,lines 5-30.* The defect can be caused by kinetic spraying. *Column 7, lines 35-45 and 55-60.* A repair coating is applied to the defect by thermally spraying a molten material on the defect. *Column 7, lines 5-15 and 55-65.* This thermal spray coating fills and repairs the defect. *Column 7, lines 55-60.* The thermal spray process can be an air plasma thermal spray process. *Column 6, lines 5-15 and column 7, lines 25-35 (as the "air heater 32" can comprise a "plasma thermal heater", the provided thermal spray process will be an "air plasma thermal spray process").* The thermal spray process can also be a high velocity oxy-fuel combustion thermal spray process as claimed, because the heater can also be a "combustion chamber", which in combination with the provided de Laval supersonic nozzle would provide the required structure for a high velocity oxy-fuel combustion thermal spray process. *Column 7, lines 25-27 (the "combustion chamber" and column 4, lines 5-10 (as to the de Laval supersonic nozzle).*

While Fuller does not state in the patent itself that the kinetically sprayed surface for repair would have a thickness of at least 5 mm, Fuller specifically incorporates by reference Van Steenkiste, et al "Aluminum coatings via kinetic spray with relatively large powder particles" published in Surface and Coatings Technology 154, pages 237-232, 2002 (hereinafter "Van Steenkiste article") (*see column 3, lines 10-17*). Therefore, the material in Van Steenkiste article is considered part of the teaching of Fuller. Van Steenkiste article at the paragraph bridging pages 230-240 teaches the formation of kinetic spray coatings of approximately 8 mm in thickness and also at the first full paragraph of the first column on page 247 teaches the formation of kinetic sprayed coatings of 7.5 mm and 8.0 mm (the "height" of the samples). Therefore, Fuller would provide that the thickness of the kinetic sprayed coating that would have a defect needing to be repaired can be 7.5 mm or 8 mm (greater than 5 mm).

Claim 2, 11: the molten material is formed from the same material as the kinetically sprayed surface. *Column 7, lines 35-65 (as the gun is just oscillated from one spray type to the other).*

Claims 3, 12: Fuller provides that particles of different compositions can be used. *See Claim 4.*

Claim 4, 10: an additional kinetically sprayed coating can be applied over the thermally sprayed once molten material. *Column 7, lines 55-65.*

Claim 6, 14: the defect can comprise at least one conical defect. *Column 7, lines 49-45.*

Claim 7, 15: the molten material can be a metal or alloy. *Column 6, line 60 through column 7, line 5.*

9. Claims 1, 3, 4, 6, 7, 10, 12, 14 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Smith et al (US2004/0065432) and are also provisionally rejected under 35 U.S.C. 102(e) as being anticipated by Smith et al copending Application No. 10/263,172 (of which US 2004/0065432 is the published application) which has a common inventor (Alaa A. Elmoursi) with the instant application.

(A) Based upon the earlier effective U.S. filing date of the copending application, 10/263,172 would constitute prior art under 35 U.S.C. 102(e), if published under 35 U.S.C. 122(b) or patented. This provisional rejection under 35 U.S.C. 102(e) is based upon a presumption of future publication or patenting of the copending application.

This provisional rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the copending application was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131. This rejection may not be overcome by the filing of a terminal disclaimer. See *In re Bartfeld,* 925 F.2d 1450, 17 USPQ2d 1885 (Fed. Cir. 1991).

(B) The applied 2004/0065432 reference has a common inventor (Alaa A. Elmoursi) with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

*** For clarity, the Examiner has cited the paragraph numbers to Smith et al (US 2004/0065432). ****

Claim 1: Smith teaches a method for providing a coating system. *Paragraph [0019].* A kinetically sprayed surface having a thickness of at least 5 mm can be provided. *Paragraphs [0028], [0030], [0041] (layer 104 with a thickness of preferably up to 5.0 mm and can be up to several centimeters, and layer 108 with a thickness of 5-7 mm, preferably 6 mm).* The kinetically sprayed surface is formed from particles maintained at a temperature below their melting temperature during kinetic spraying. *Paragraph [0026].* Then a coating is provided over the kinetic sprayed coating by thermally spraying a molten material on the kinetic sprayed coating. *Paragraphs [0028], [0034], [0036] (layer 106 over layer 104 and layer 109 over layer 108).* The thermal spraying can be by a process such as high velocity oxy-fuel (HVOF) spraying. Paragraphs [0034], [0036]. Smith notes that the kinetic sprayed surfaces can have defects by noting that substrate surfaces can have imperfections which cause imperfections (or defects) in the kinetic spray layer and that a thin layer applied using a thermal spray process corrects (and thus repairs) the surface defects and prevents them for altering subsequently applied kinetic spray coatings, specifically noting that layer 106 and 109 serve this purpose. *Paragraph [0045].* Thus, layer 104, over which 106 is applied would have defects from the surface (or be the surface with defects) that layer 106 corrects/repairs; and layer 108 over which layer 109 would have defects from the surface (or be the surface with defects) that layer 109 corrects/repairs. *Paragraph [0045].*

Claim 3 and 12: the molten material has a different composition from the kinetically sprayed surface. *Paragraphs [0028], [0030], [0033] [0041], [0043] (note the materials of layers 104, 106, 108 and 109).*

Claim 4, 10: an additional kinetically sprayed coating can be applied over the thermally sprayed once molten material. *Paragraphs [0028] (layer 108 over layer 105 and layer110 over layer 109).*

Claim 6, 14: the defects would inherently include conical defects, as such defects inherently form during kinetic spraying.

Claim 7, 15: the molten material can be a metal or alloy. *Paragraph [0043] (copper or copper alloy for layer 109, for example).*

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable or provisionally unpatentable over Smith et al (US 2004/0065432) or (10/263,172).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Smith, as discussed in the 35 USC 102(e) rejection above using Smith, teaches all the features of these claims except that the molten material comprises a nickel and copper alloy.

However, Smith does teach that the molten material of layer 109 can be a copper or copper alloy. Paragraph [0042] – [0043].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Smith to use a copper alloy containing nickel as the thermally sprayed layer 109 with an expectation of desirable coating results, because Smith teaches that layer 109 can be a copper alloy, and the Examiner takes Official Notice that it is well known in the thermal spraying art for copper to be alloyed with nickel.

13. The rejection of claims 1-4, 6-8, 10-12 and 14-16 under 35 U.S.C. 103(a) as being unpatentable over Brogan (US 2002/0110682) is withdrawn due to applicant's amendments of February 1, 2007 requiring the kinetically sprayed coating to have a thickness of at least 5 mm.

14. The rejection of claims 1-4, 6-8, 10-12 and 14-16 under 35 U.S.C. 103(a) as being unpatentable over Brogan (US 2002/0110682) in view of the admitted state of the prior art is withdrawn due to applicant's amendments of February 1, 2007 requiring the kinetically sprayed coating to have a thickness of at least 5 mm.

Response to Arguments

15. Applicant's arguments filed February 1, 2007 have been fully considered but they are not persuasive.

(1) As to the obviousness double patenting rejection and the filed terminal disclaimer, the obviousness double patent rejection using Fuller 6,743,468 has been withdrawn due to the filed terminal disclaimer. However, a new provisional obviousness double patenting rejection has been made as discussed in the rejection above based on the newly discovered art to Smith et al 10/263,172.

(B) As to the 35 USC 102 rejection using Fuller, applicant has amended the claims to add the features of claims 5 and 13, which were not previously rejected, to the independent claims. However, the Examiner has further reviewed the incorporated by reference material in the Fuller patent, and based on the teachings in the Van Steenkiste article, as discussed in the rejection above, has now rejected the claims with the features of claims 5 and 13 as being provided by the Fuller by way of the incorporated by reference material.

(C) As to the 35 USC 103 rejections using Brogan, these have been withdrawn due to applicant's amendments to add the features of claims 5 and 13, which were not previously rejected, to the independent claims.

(D) The Examiner further notes the new 35 USC 102(e) rejection, provisional 35 USC 102(e) rejection, 35 USC 103 rejection and provisional 35 USC 103 rejection made above using newly discovered prior art to Smith et al (US 2004/0065432) and (US Appl. No. 10/263,172)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (571) 272-1413. The examiner can normally be reached on M-F(6:00-3:30) with the First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and for After Final communications.

Other inquiries can be directed to the Tech Center 1700 telephone number at (571) 272-1700.

Furthermore, information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KATHERINE BAREFORD
PRIMARY EXAMINER